

REMARKS

Reconsideration and allowance of this application are respectfully requested. Claims 12, 14 and 15 are allowed. Claims 17 and 18 are added, and claims 1-9, 13 and 16 were previously cancelled. Claims 10 and 11 remain in this application and, as amended herein, are submitted for the Examiner's reconsideration.

A petition for a one-month extension of the term for response to said Official Action, to and including October 20, 2003, is transmitted herewith.

Applicant expresses appreciation for the allowance of claims 12, 14 and 15. Applicant also expresses appreciation to Examiner Quinto for the telephonic interview held on September 16, 2003.

In the Office Action, claims 10 and 11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dozier (U.S. Patent No. 5,772,451) in view of Khandros (U.S. Patent No. 5,148,266). It is submitted, however, that the claims are patentably distinguishable over the references.

The Dozier patent describes, as shown in Fig. 2C and described on column 18, lines 2-24, a device 230 with a plurality of wire core interconnection elements 231, ..., 236 mounted on the surface of an electronic component 240. The free ends or tips of the interconnection elements may be used to contact the bond pads of a semiconductor device.

The Khandros patent describes, *inter alia*, an interposer disposed between a chip and a substrate. In the embodiment relied upon by the Examiner, contacts on the chip are connected to terminals on the interposer by leads extending through apertures in the interposer. In Fig. 2, Khandros shows an interposer 42 with leads 50 curved between its contact end 56 and its terminal end 58 in a direction *perpendicular* to the

faces 46 and 48 of the interposer. In Fig. 12, Khandros shows an interposer 242 with terminals 248 and leads 250 in which the leads 250 are curved in directions *parallel* to the face 246 of the interposer 242 and *parallel* to the plane of the front face 238 of the chip. (See col. 7, lns. 34-48; and col. 13, lns. 22-35.)

The Examiner acknowledges that Dozier does not explicitly state that the leads shown in Fig. 2C can be curved in a plane parallel to the front surface of the body but contends that because Khandros describes that leads curved in directions parallel to the face of the interposer and parallel to the front face of the chip provide increased flexibility, it would be obvious to curve the leads of the device of Dozier in a plane parallel to the front surface of the body. However, Dozier's leads consist of *wire core* that is used for wire bond interconnections. Such wire core is fed from a wire bonding head that bends the wire core *away from* the surface of the chip before a portion of the wire core is detached from the bonding head. A person of ordinary skill in the relevant art would expect the wire core leads shown in Fig. 2C of Dozier to be oriented in a direction away from the surface of the chip, rather than in a plane parallel to the surface of the chip, because of the operation of the bonding head and would not look to the teachings of a further reference directed to a non-wire bond structure to curve such wire bond elements in a plane parallel to the surface of the chip. Thus, a person of ordinary skill in the relevant art would not look to combine the teachings of the references.

In the prior Amendment dated May 20, 2003, Applicant also noted that the wire core used for wire bond interconnections is fed from a wire bonding head that does not configure the wire bond interconnection in a plane parallel to the surface of the chip. In the present Office Action, the

Examiner has mistakenly assumed that Applicant merely argued that the structures described in the two references are not physically combinable. The Examiner then refers to MPEP § 2145 which points out that test for obviousness is not whether the features of one reference may be bodily incorporated into the structure of another reference but is what the combined teachings of the references would suggest to those of ordinary skill in the art. However, to modify or combine such reference teachings, there must first be some suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. MPEP § 2143.01 and 2145. For the reasons described above, a person of ordinary skill in the relevant art would not find here a suggestion or motivation to combine the teachings of Dozier, which shows wire core elements that are bent by the bonding head in a direction away from the surface of the chip, with another reference that teaches curving non-wire core elements in a plane parallel to the surface of the chip.

The Examiner also notes that Khandros discloses that leads curved in directions parallel to the face of the body have increased flexibility and that Dozier discloses that flexible or elastic leads are desirable and useful. The Examiner then argues that it would therefore be obvious to modify the leads of Dozier in the manner of Khandros. However, Dozier describes that resilient or flexible leads are desirable to attain various objectives, such as for accommodating gross non-planarities in the components that are to be interconnected. (See col. 7, lns. 5-16.) Dozier then describes that the objectives are met by various embodiments provided by the patent, including the embodiment shown in Fig. 2C. A person of ordinary skill in the relevant art would recognize that the resilient or flexible leads described by Dozier already attain these objectives and thus would not find motivation or incentive to further modify

the embodiments of Dozier in the manner taught by a further reference.

Additionally, though Khandros shows, in Fig. 12, a lead that is curved in a plane parallel to the surface of the chip and describes that this structure provides increased flexibility in the lead, Khandros also shows, in Fig. 2, leads that are curved in a direction *perpendicular* to the face of the chip which also provides flexibility. Thus, there is no suggestion that leads curved in a plane parallel to the surface of the chip are more desirable than leads curved in a direction perpendicular to the surface of the chip. A person of ordinary skill in the relevant art would therefore not find any incentive to modify Dozier's wire core leads, which are oriented in a direction perpendicular to the surface of the chip, to be in a plane parallel to the surface of the chip.

It follows that there is no incentive in the art to modify Dozier's wire core elements in the manner asserted by the Examiner. The withdrawal of the rejection of claims 10 and 11 under 35 U.S.C. § 103 is therefore respectfully requested.

New claims 17 and 18 depend from claims 10 and 11, respectively, and are distinguishable over the Dozier and Khandros patents at least for the same reasons. Support for claims 17 and 18 is found in Fig. 3 and in paragraph [0032] of the specification.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that the Examiner telephone applicant's

Application No.: 09/785,104


Docket No.: TESSERA 3.0-188 DIV

attorney at (908) 654-5000 in order to overcome any additional objections that the Examiner might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

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Respectfully submitted,

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